CLAIMS

1. A capacitance type MEMS device comprising:

an insulative substrate;

a lower electrode formed on the insulative substrate;

a dielectric film formed on the lower electrode;

a conductor layer formed on the dielectric layer; and

an upper electrode opposed to the lower electrode and disposed at least with a gap relative to the conductor layer formed on the dielectric layer and controlled whether the upper electrode is in contact or non-contact with the conductor control layer formed on the dielectric layer;

wherein the conductor layer formed on the dielectric layer is formed in a region where the upper electrode and the lower electrode are opposed such that a conductor layer formed on the dielectric layer is present in a portion of the opposed area as viewed in the direction perpendicular to the insulative substrate, and

wherein the area of the region where the conductor layer formed on the dielectric layer is present in the region where the upper electrode and the lower electrode are opposed is equal to or smaller than the area of the region where the conductor layer formed on the dielectric layer is not present in the opposed region.

2. A capacitance type MEMS device comprising:

an insulative substrate;

a lower electrode formed on the insulative substrate;

a dielectric film formed on the lower electrode;

a conductor layer formed on the dielectric layer; and

an upper electrode opposed to the lower electrode and disposed at least with a gap relative to the conductor layer formed on the dielectric layer and controlled whether the upper electrode is in contact or non-contact with the conductor layer formed on the dielectric layer;

wherein the conductor layer formed on the dielectric layer is connected through a resistor relative to high frequency signals to a desired potential with respect to direct current.

3. A capacitance type MEMS device according to claim 2, wherein the resistor relative to the high frequency signals is a material showing an electric resistance value of at least 1 kΩ or more and less than 1 MΩ.

4. A capacitance type MEMS device according to claim 2, wherein the resistor relative to the high frequency signals is an inductor showing an impedance of at least 1 kΩ or more and less than 1 MΩ.

5. A capacitance type MEMS device according to claim 2, wherein the desired potential is provided by connection with respect to direct current of the conductor formed on the dielectric layer to one of the upper electrode, the lower

electrode, the control electrode, and the ground region.

6. A capacitance type MEMS device according to claim 1, wherein the conductor layer formed on the dielectric layer has an opening.

7. A capacitance type MEMS device according to claim 1, wherein the conductor layer formed on the dielectric layer is made of a single layered film at least containing aluminum or a plurality of metal lamination films including an aluminum-containing film.

8. A capacitance type MEMS device according to claim 2, wherein the conductor layer formed on the dielectric layer is made of a single layered film at least containing aluminum or a plurality of metal lamination films including an aluminum-containing film.

9. A capacitance type MEMS device according to claim 1, wherein the conductor layer formed on the dielectric layer is made of a single layered film at least containing gold or a plurality of metal lamination films including a gold-containing film.

10. A capacitance type MEMS device according to claim 2, wherein the conductor layer formed on the dielectric layer is made of a single layered film at least containing gold or a plurality of metal lamination films including a gold-containing film.

11. A capacitance type MEMS device according to claim 1,

wherein the conductor layer formed on the dielectric layer is made of a single layered film at least containing copper or a plurality of metal lamination films including a copper-containing film.

12. A capacitance type MEMS device according to claim 2, wherein the conductor layer formed on the dielectric layer is made of a single layered film at least containing copper or a plurality of metal lamination films including a copper-containing film.

13. A high frequency device in which the capacitance type MEMS device according to any one of claims 1 to 12 is provided as an on/off switch for high frequency signals.

14. A high frequency device in which the capacitance type MEMS device according to any one of claims 1 to 12 is provided as an output changing switch for high frequency signals.

15. A high frequency device in which the capacitance type MEMS device according to any one of claims 1 to 12 is provided as a high frequency filter module for mobile telephones.

16. A high frequency device in which the capacitance type MEMS device according to any one of claims 1 to 12, an active device, a passive device, or both of the active device and the passive device are mounted on one substrate.

17. A method of manufacturing a capacitance type MEMS

device, comprising:

a step of forming a lower electrode disposed on an insulative substrate;

a step of forming a dielectric film at a desired position on the insulative substrate and on the upper surface of the lower electrode;

a step of forming a conductor layer pattern at a desired position of a region where the lower electrode and the dielectric film above the insulative substrate are laminated;

a step of forming a sacrificial film over the insulative substrate formed with the lower electrode, the dielectric film, and the metal film of low resistance;

a step of forming an upper electrode on the insulative substrate and on the sacrificial film at a position opposed to the lower electrode; and

a step of removing the sacrificial film.